CHAPTER 4

LOGISTICS DATA ELEMENT DEVELOPMENT PROCEDURES

A. INTRODUCTION

1. Data requirements are identified by users of logistics information who need to make decisions or conduct operations, or by system developers who support users. Data elements are not developed by data administrators or users working in isolation. Data elements are developed by users working together with logistics functional experts and data administrators to assist in defining and meeting the users data requirements. In many cases it will be discovered that the users requirement is already being met within the Department of Defense Logistics Community and the problem is to make the data available only to the “new” user of the data element. A quick review of standard data elements in the DDRS can often result in identification of a data element which meets the user’s requirement and saves development time.

2. Data elements are named in the context of the organization’s data model and with a view towards integration of the data element into the DoD data model. Awareness of the DoD data model will facilitate naming data elements, help avoid duplication, and support consistency throughout the Department of Defense.

B. PURPOSE

1. The procedures presented in this Chapter have been established to facilitate the efficient development of DoD Logistics standard data elements. After completing these procedures, data elements will be ready to enter the DoD data element standardization approval process.

2. These procedures are applicable when developing new DoD Logistics standard data elements, reverse engineering, or reengineering existing logistics data elements in migration or other existing systems to develop DoD standard data elements.

3. Before going through the development of a logistics standard data element it is wise to have a complete understanding of the data requirement. A quick review of

existing DoD standard data elements might result in finding the standard data element already exists. The standard data element should then be used, or if necessary, a modification to it can be prepared. This can save considerable time and effort. If no adequate standard data element exists, the steps outlined below should be followed.

C. ASSEMBLE SOURCE DOCUMENTATION

1. Gather all available documentation that may provide information for, or assist in, completing the DoD Logistics standard metadata of the generic element(s) and/or data element(s) to be proposed for standardization. The DoD data model and the DDRS are primary sources of information for developing a DoD Logistics standard data element. Additional references and resources including the following:

a. Functional information resources.

b. Functional or component data models and process models.

c. Functional and Component data dictionaries that may exist.

d. Federal information processing standards (FIPS).

e. “Dictionary of Business Terms.”

f. Unabridged dictionary.

g. U.S. Military Dictionary (Dictionary of Military Term/Acronym).

h. Thesaurus.

i. Notes from interviews with business and systems analysts.

j. DoD Publications, Manuals, Directives and/or Instructions.

k. System documentation.

L Technical writing guide.

m. DDRS End User Manual.

2. A data element development worksheet maybe prepared for documenting data element attributes. On-line development of data elements in the DDRS is strongly encouraged.

3. Access to the DDRS may be director through functional dictionaries or Component dictionaries.

D. IDENTIFY PRIME WORD NAME (MANDATORY) WITH MODIFIER NAME(S) (OPTIONAL)

1. Identify Prime Word Name

a. From the DoD data model, identify the data entity of the attribute for which the data element is being developed (e.g., airport, individual, vehicle). These are represented by the prime words listed in the DDRS.

b. If no entity in the DoD data model seems appropriate, a candidate DoD data model entity must be prepared and submitted through the appropriate CDAd or FDAd to the DoD DAd. The candidate entity will often come from a lower level data model that maps to the DoD data model, and will be the source of the prime word. The candidate standard data element may be prepared and submitted simultaneously with the candidate entity submission.

2. Identify Prime Word Modifier Name(s)

a. The addition of modifiers to further describe the data entity for which data is to be collected is optional.

b. The number of prime word modifiers should be minimized.

c. The modifiers are normally selected from the entity names of the next two higher level entities in the DoD data model.

d. The DDRS contains a list of modifiers that have been previously been approved. This restricted vocabulary should be used whenever possible.

3. Combine the prime word modifier name(s) and the prime word name. Order multiple modifiers from right to left, general to specific. (See “Data Element Naming Rules" in Chapter 3, section D, above.)

4. There maybe times when a prime word modifier more logically should follow the prime word rather than precede it. This is allowable but should be done with discretion. These modifiers were referred to as property modifiers in Chapter 2.

E. DEVELOP DEFINITION OF PRIME WORD AND MODIFIERS

1. Review the definitions of the data entity in the source data model and the associated attribute for which the data element is being developed and relate it to the associated data entity in the DoD data model.

2. Formulate a definition for the prime word with its modifier(s).

3. Make the definition a logically sequenced, grammatically and structurally mrrect, simple sentence. (See “Data Element Definition Rules” in Chapter 3, section C.)

4. Edit and refine the definition according to the standards of English writing.

F. DEVELOP GENERIC ELEMENT NAME (MANDATORY)

1. Identify Class Word Name

a. Identify the category of data associated with the data entity attribute for which the data element is being developed (e.g., code, name, and amount). This will come from the class word name list contained in Appendix A.

b. If no class word on the list seems to be appropriate, a candidate word maybe submitted through the appropriate CDAd or FDAd to the DoD DAd. The candidate standard data element may be prepared and submitted simultaneously with the candidate class word submission.

2. Identify Class Word Modifier Name(s)

a. The addition of modifiers to further describe and restrict the category of data to be collected is optional.

b. A minimum number of words should be selected as modifiers to describe the class word name.

c. The modifiers should be selected from the data entity attribute name in the DoD data model whenever possible.

d. The DDRS contains a list of modifiers which have previously been approved. This restricted vocabulary should be used whenever possible.

3. Combine the class word modifier name(s) and the selected class word name to form the generic element name. Order multiple-modifiers from right to left, general to specific. (See "Data Element Naming Rules" in Chapter 3, section D.)

G. DEVELOP GENERIC ELEMENT DEFINITION (MANDATORY)

If the standard generic element already exists, go directly to section J, below.

1. Select the generic element definition structure for the class word to be used in the generic element. (See Appendix A.)

2. Formulate a definition for the class word modifiers and incorporate the modifier definition into the generic element definition structure.

3. Make the definition a logically sequenced, grammatically and structurally correct, simple sentence definition. (See "Data Element Definition Rules" in Chapter 3, section C.)

4. Edit and refine the generic element definition according to acceptable English writing conventions.

H. IDENTIFY GENERIC ELEMENT NAME (MANDATORY) WITH PROPERTY MODIFIER (OPTIONAL)

1. Sometimes generic elements require additional modifiers. These were referred to as property modifiers in Chapter 2.

2. The addition of such modifiers is optional and should be avoided whenever possible.

3. The DDRS contains a list of modifiers that have previously been used. This restricted vocabulary should be used whenever possible.

4. Combine the property modifier(s) and the generic element name.

5. Unit of measure is not allowed as part of a generic element name.

1. DEVELOP DEFINITION OF GENERIC ELEMENT AND MODIFIER(S)

1. Formulate a definition for the generic element modifier(s) and incorporate the modifier(s) definition with the generic definition structure.

2. Make the definition a logically sequenced, grammatically and structurally correct, simple sentence definition. (See “Data Element Definition Rules” in Chapter 3, section C.)

3. Edit and refine the generic element with modifier(s) definition according to acceptable English writing conventions.

J. DEVELOP DATA ELEMENT NAME (MANDATORY)

1. Combine the prime word name with its modifier(s) and the generic element name with its modifier(s) to form the data element name. (See “Data Element Naming Rules” in Chapter 3, section D.)

2. Ensure that the domain of the data element is consistent with, or a subset of, the domain of the generic element.

K. DEVELOP DATA ELEMENT DEFINITION (MANDATORY)

1. Incorporating the prime word with modifier(s) definition into the generic element with modifier(s) definition.

2. Make the definition a logically sequenced, grammatically and structurally correct, simple sentence definition. (See “Data Element Definition Rules” in Chapter 3, section C.)

3. Edit and refine the data element definition according to the standards of English writing.

L. RESEARCH EXISTING ELEMENTS

1. Following the procedures in the DDRS End User Manual, search the DDRS to locate generic element(s) having a name the same as, or similar to, the generic element name just developed.

2. If no approved, modified, candidate, or archived generic element is identified, continue development of a new generic element (section M).

3. For each generic element found in the DDRS, list the standard data elements in the DDRS whose names contain the same or similar prime word with modifier(s) name.

4. Compare the name being developed with the names on the list from the DDRS.

5. Identify the name of each data element from the DDRS that describes the same concept as the name being developed.

6. Compare the definition of the data element under development with the definition of each data element identified in the step 5., above.

7. Identify the name of each data element having a matching definition.

8. Review the value domain of each data element identified in step 7., above.

9. Identify the name of each data element having a domain, that either matches, includes all of the values of (superset), or approximates the intended domain of the data element under development. If more than one is identified, determine which represents the data element under development.

10. Review the mandatory attributes of each data element identified in step 9., above.

11. Identify the name of each data element having required attributes that either match or approximate the intended attribute values of the data element under development.

12. Select the data element from the previous step having mandatory attribute values nearest those of the data element under development. This procedure should result in no more than one approved, modified, candidate or archived data element.

13. If no data element will fulfill the requirements of the data element under development, continue development, continue development of the new data element (See section O).

14. If an approved, modified, or candidate data element will fulfill the requirements of the data element under development, prepare and submit the attributes required to register a new application of the existing data element according to the procedures in Chapter 6, section B.

15. If an approved or archived data element can be modified to fulfill the requirements of the data element under development, prepare the required modifications to the selected element and submit these changes to the appropriate FDAd or CDAd for coordination and preliminary review, as described in Chapter 5.

16. If an archived data element will fulfill the requirements of the data element under development, reinstate the archived data element according to the procedures in Chapter 6, section E.

M. IDENTIFY GENERIC ELEMENT DOMAIN (MANDATORY)

Skip section M if a new generic element is not being developed.

1. Record the generic element domain definition text to describe the overall meaning or general characteristics of the generic element domain.

2. For a generic element with a specific domain, record each value (generic element domain value identifier) and the definition for each value (generic element domain value definition text). (If the domain is excessively large, an extract sample list should be given along with the source document for the complete list in lieu of the entire domain list.)

3. For all quantitative class words, record the allowable range of the domain values (generic element low-range identifier and generic element high-range identifier).

N. RECORD REMAINING GENERIC ELEMENT ATTRIBUTES

Skip section N, if a new generic element is not being developed.

Record values for each of the remaining mandatory attributes and any appropriate

optional’attributes for the new generic element. Refer to the detailed standard generic element attribute descriptions in Appendix B.

0. IDENTIFY DATA ELEMENT DOMAIN (MANDATORY)

1. Enter the data element domain definition text to describe the overall meaning or general characteristics of the data element domain.

2. For a data element with a specific domain, enter each value (standard data element domain value identifier) and the definition for each value (standard data element domain value definition text). The domain values must be the same or a subset of the domain values of the associated generic element. (If the domain is excessively large an extract sample list should be given along with the source document for the complete list in lieu of the entire domain list.)

3. For all quantitative class words (see page A-6), enter the allowable range of the domain values (standard data element low-range identifier and standard data element high-range identifier). The low-range and high-range values must be equal to or a subset of the low-range and high-range values of the associated generic element.

4. If a standard generic element exists that contains some, but not all the domain values of the data element being developed, prepare and submit the required modifications as a modified standard generic element. The candidate standard data element may be prepared and submitted simultaneously.

P. RECORD REMAINING DATA ELEMENT ATTRIBUTES

Record values for each of the remaining mandatory attributes and any appropriate optional attributes for the data element. Refer to the detailed standard data element attribute descriptions in Appendix B.

Q. SUBMIT PROPOSED ELEMENT(S) FOR APPROVAL

Submit the developmental generic element and/or data element information to the appropriate FDAd or CDAd for coordination and preliminary review, as described in Chapter 5.